

Amendments to the Drawings

The attached sheet includes changes to Figs. 1 and 2 and replaces the original sheet with Figs. 1 and 2. In Figs. 1 and 2, the legend –Prior Art– has been added.

Attachment: (1) Replacement sheet

(1) Annotated sheet showing changes

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office Action, and amended as necessary to more clearly and particularly describe the subject matter which Applicant regards as the invention.

New claims 11–15 have been added by amendment herein.

The disclosure was objected to for informalities and has been amended appropriately to overcome the objection.

The Examiner has required that Figs. 1 and 2 be designated by a legend such as --Prior Art--. The drawings have been amended appropriately.

Claims 1–2 and 4 were rejected under 35 U.S.C. 102(b) over U.S. Patent No. 5,682,397 to Scheps. Claims 3–7 have been cancelled. Claim 1 has been amended to include limitations from canceled claims 5 and 7, thereby rendering the rejection moot as it applies to claims 1 and 2. The patentability of claims 1 and 2 will be discussed further below with regard to the rejection of claim 7.

Claims 1 and 4–10 were rejected under 35 U.S.C. 103(a) over Applicants' background disclosure with reference to Figs. 1 and 2 (hereinafter “APA”) in view of U.S. Patent No. 4,563,763 to Kuhn. Claims 3–7 have been cancelled. Claim 1 has been amended to include limitations from canceled claims 5 and 7. For the following reasons, the rejection of claims 1 and its dependent claims 2 and 8–10 is respectfully traversed.

Regarding amended claim 1, and as the rejection originally applied to claims 5 and 7, neither APA nor Kuhn teaches or suggests a “cooling holder being in the shape of a tube having openings on both end and housing a lasing medium; *and* said cooling holder and said lasing medium contacting each other at only a single surface,” as required. With respect to FIG. 1 of

APA, the Examiner states that “the cooling system may comprise a *planar* cooling holder 180 that supports the lasing medium on a top surface.” (Emphasis added.) With respect to FIG. 2 of APA, the Examiner states that “the cooling holder 220 may be made of copper and formed as a tube shape with openings on both ends.” However, APA does not disclose that a *tubular* cooling holder is arranged to contact the lasing medium *only at a single surface*, as in amended claim 1. Thus, the Examiner’s interpretation requires that the embodiments of Figs. 1 and 2 be combined in order to include the required limitations. There is no motivation or suggestion in the prior art to make such a combination. Further, due to the claimed structural features, effective cooling is possible due to the cooling holder and the lasing medium being attached at only a single surface, even if the cooling temperature becomes low and the thermal conductivity of the cooling holder becomes lower than the thermal conductivity of the lasing medium. Additionally, the radiative heat from the periphery of the lasing medium can be shielded because the cooling holder is tube-shaped. As a result, it is possible to obtain a high cooling efficiency. None of these advantages are recognized by the prior art. Thus, no *prima facie* case of obviousness can be made sufficient to support a rejection under 35 U.S.C. 103(a).

Further, new claim 11 based on original claim 1 has been added by amendment including newly added limitations. The above rejections do not apply to newly added claim 11 and its dependent claims 12–15 for the following reasons.

Regarding newly added claim 11, the prior art of record does not teach “cooling system using a *gas having a temperature of 70 K or less* as a heat-carrying medium,” as required to anticipate the claim. Further, due to this structural feature, according to the claimed invention, the lasing medium can be cooled to a temperature at which the thermal conductivity of the material constituting the lasing medium is the maximum. As a result, it is possible to obtain a high cooling efficiency and to greatly increase the laser output as compared with room

temperature. This advantage is not disclosed in the prior art of record. Further, there is no other suggestion or motivation in the prior art to modify the teachings of Scheps to include this feature. Therefore, since every limitation of claim 11 is not taught or suggested by the prior art, claim 11 and its dependent claims 12–15 are patentable of the prior art of record.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. 35859.

Respectfully submitted,
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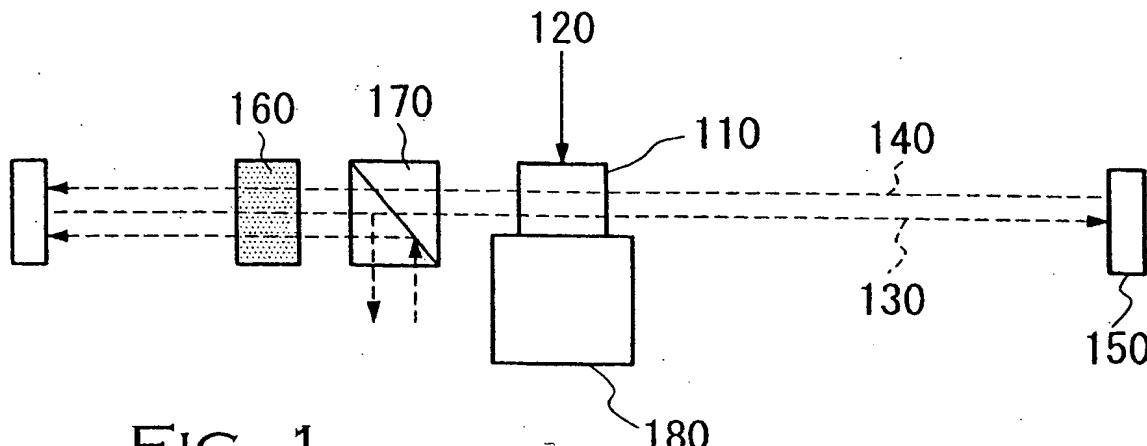
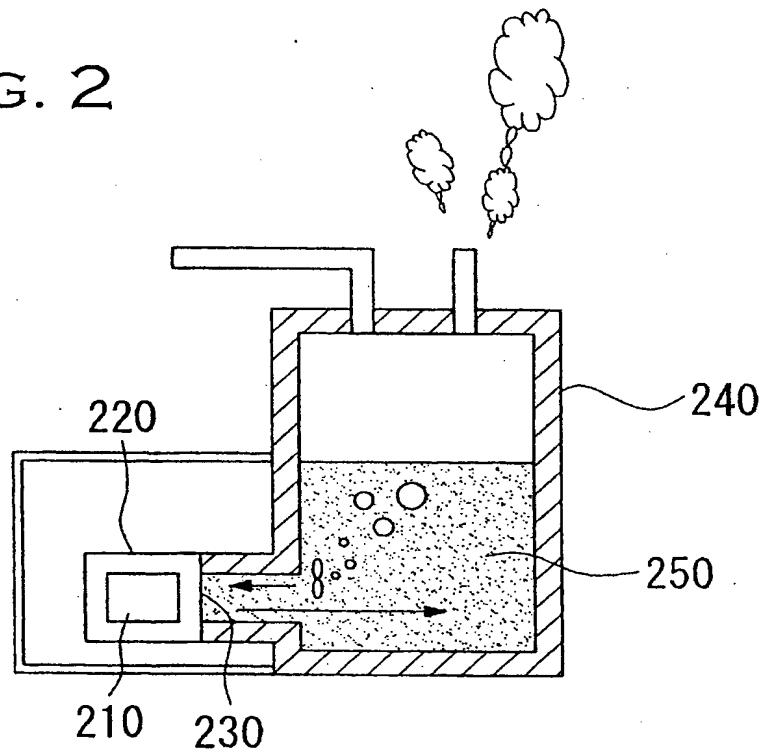


FIG. 1

- PRIOR ART -

FIG. 2



- PRIOR ART -